## **Figure 3 Estimating Midpoint Speed**

In mathematical terms, the following exponential function gives the relationship between midpoint speed and spacing of slow points:

```
85^{th}_{midpoint \, (mph)} = 85^{th}_{slow \, point \, (mph)} + (85^{th}_{street \, (mph)} - 85^{th}_{slow \, point \, (mph)}) * 0.56 * (1 - e^{-0.004 * spacing \, (ft.)}) where; 85^{th}_{midpoint} = resulting \, 85^{th}_{percentile \, speed \, at \, midpoint \, after \, treatment; 85^{th}_{slow \, point} = estimated \, 85^{th}_{percentile \, speed \, at \, the \, slow \, point \, after \, treatment; 85^{th}_{street} = 85^{th}_{percentile \, speed \, of \, street \, before \, treatment; spacing = distance in feet between two devices.
```

When placing speed-control measures, use the above formula to test proposed spacings to determine whether the estimated midpoint speeds would meet the targeted midpoint speed.

## Example (speed humps on street with starting speed of 32 mph):

Where spacing is 350 feet:

```
85^{th}_{midpoint \, (mph)} = 15 \, mph + ((32 \, mph - 15 \, mph) * 0.56 * (1 - e^{-0.004} * 350 \, feet)) 85^{th}_{midpoint \, (mph)} = \underline{22 \, mph} Where spacing is 750 feet: 85^{th}_{midpoint \, (mph)} = 15 \, mph + ((32 \, mph - 15 \, mph) * 0.56 * (1 - e^{-0.004} * 750 \, feet)) 85^{th}_{midpoint \, (mph)} = \underline{24 \, mph}
```

The spacing of neighborhood traffic management measures directly affects the midpoint speeds: the farther apart they are, the higher the midpoint speed. In general, speed control measures placed 350 to 750 feet from another slow-point can result in speed reductions similar to those indicated in Table 4. Measures placed at intervals of less that 350 feet can become a nuisance to drivers, and measures placed greater than 750 feet apart decrease the ability to slow speeds to the target midpoint speed. In addition, vertical measures should be place a minimum of 250 feet from an adjacent intersection.